PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 575163C	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International Application No. **PCT/AU2003/000258**	International Filing Date *(day/month/year)* 5 March 2003	Priority Date *(day/month/year)* 5 March 2002
International Patent Classification (IPC) or national classification and IPC Int. Cl.[7] C10L 9/02		
Applicant KARALEE RESEARCH PTY LTD et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

   [X] This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 1 sheet(s).

3. This report contains indications relating to the following items:

   - I [X] Basis of the report
   - II [ ] Priority
   - III [ ] Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV [ ] Lack of unity of invention
   - V [X] Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI [ ] Certain documents cited
   - VII [ ] Certain defects in the international application
   - VIII [ ] Certain observations on the international application

Date of submission of the demand 3 October 2003	Date of completion of the report 13 April 2004
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer **THARU FERNANDO** Telephone No. (02) 6283 2486

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/AU2003/000258

I. Basis of the report

1. With regard to the elements of the international application:*

- [ ] the international application as originally filed.
- [X] the description, pages 1-16 as originally filed,
  pages , filed with the demand,
  pages , received on with the letter of
- [X] the claims, pages 18-19 as originally filed,
  pages , as amended (together with any statement) under Article 19,
  pages , filed with the demand,
  page 17 received on 1 April 2004 with the letter of 31 March 2004
- [X] the drawings, pages 1-3, as originally filed,
  pages , filed with the demand,
  pages , received on with the letter of
- [ ] the sequence listing part of the description:
  pages , as originally filed
  pages , filed with the demand
  pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language which is:

- [ ] the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- [ ] the language of publication of the international application (under Rule 48.3(b)).
- [ ] the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- [ ] contained in the international application in written form.
- [ ] filed together with the international application in computer readable form.
- [ ] furnished subsequently to this Authority in written form.
- [ ] furnished subsequently to this Authority in computer readable form.
- [ ] The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- [ ] The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. [ ] The amendments have resulted in the cancellation of:
   - [ ] the description, pages
   - [ ] the claims, Nos.
   - [ ] the drawings, sheets/fig.

5. [ ] This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report*

International application No.
PCT/AU2003/000258

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-19	YES
	Claims		NO
Inventive step (IS)	Claims	1-19	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-19	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The current invention is directed to a process for reducing the amount of sulfur-containing impurities in carbonaceous materials by adding an aqueous solution of hydrofluorosilicic acid in absence of hydrogen fluoride and a strong mineral acid, so that some of the sulphur containing impurities react with the hydrofluorosilicic acid to from reaction products, and then separating these reaction product from the carbonaceous materials.

The closest prior art document to this invention is US 1537286. This document discloses the use of hydrofluorosilicic acid in the absence of hydrogen fluoride to treat carbonaceous materials to remove sulphur, and then separating the reaction product from the carbonaceous material. However it directs the person skilled in the art to treat the carbonaceous material with the hydrofluorosilicic acid in the presence of a strong mineral acid, such as hydrochloric acid or sulphuric acid. Therefore it teaches away from the current invention.

Therefore the invention defined in claims 1-19 complies with the requirements as to novelty, inventive step and industrial applicability.

Claims

1. A process for reducing the amount of sulfur-containing impurities in carbonaceous materials, comprising

(a) contacting said materials with an aqueous solution of hydrofluorosilicic acid in the absence of hydrogen fluoride and a strong mineral acid under conditions wherein at least some of said sulfur-containing impurities react with said hydrofluorosilicic acid to form reaction products, and

(b) separating said reaction products from said carbonaceous materials.

2. A process for reducing the amount of sulfur-containing impurities in carbonaceous materials, comprising

(a) contacting said materials with an aqueous solution of hydrofluorosilicic acid in the absence of hydrogen fluoride under conditions wherein at least some of said sulfur-containing impurities react with said hydrofluorosilicic acid to form reaction products;

(b) separating said reaction products and said hydrofluorosilicic acid from said carbonaceous materials and subsequently

(c) treating said carbonaceous materials with a fluorine acid solution which comprises an aqueous solution of hydrofluorosilicic acid and hydrogen fluoride.

3. A process for reducing the amount of sulfur-containing impurities in carbonaceous materials, comprising:

treating said carbonaceous materials with a fluorine acid solution which comprises an aqueous solution of hydrofluorosilicic acid and hydrogen fluoride,

separating said carbonaceous materials from said aqueous solution of hydrofluorosilicic acid and hydrogen fluoride, and then

contacting said carbonaceous materials with an organic solvent capable of dissolving elemental sulfur.

4. The process of claim 1 or 2 wherein the concentration of hydrofluorosilicic acid in the step (a) is in the range of 27% to 37% (w/v or w/w or v/w).

5. The process of claim 1 or 2 wherein the concentration of hydrofluorosilicic acid in the step (a) is in the range of 28% to 36% (w/v or w/w or v/w).